

can not and will not stop in its onward march, in its movement of expansion, until it has fulfilled its potentialities to the utmost, and this means until it has embraced and subdued the whole realm of human experience.

The science of culture is the next item of business on the agenda of science. Many of our "best minds" still talk as if the fate of civilization lay in the hands of man, to be wrecked or saved as he chooses of his own free will. Many are still prattling about how "we" are going to construct the post-war world, nursing, in Durkheim's phrase, the illusion of omnipotence. There is, as Tylor, Durkheim, Kroeber, and a few others have pointed out, a powerful and sometimes bitter antagonism to the view that it is not "we" who control our culture but that our culture controls us. And our culture grows and changes according to its own laws. As we outgrow our primitive and infantile notion of mastery and set about to

learn the nature of the culture in which we live, we will have a less flattering conception of ourselves, perhaps, but a greater capacity for rational and effective living.

And so today, we witness one of the most critical and dramatic episodes in the long and exciting history of science. Advancing over the charred bones of hapless astronomers, put to death in a frantic attempt to stem the tide of the new philosophy, science has gone on to new conquests. After a bitter battle over Darwinism, science has securely held the field of biology. Psychology has at last made it possible to regard "minds" as objects, and Sociology has illuminated the laws of social interaction. It now remains to discover the principles of a million years of culture growth and to formulate the laws of this development. When this has been done, science will have captured the last remaining stronghold of the old philosophy; it will have reached its final boundary.

BOTANY.—*Variations of accessory vascularization in four species of Citrus and their possible application as new taxonomic characters.*<sup>1</sup> FRANK D. VENNING, University of Miami. (Communicated by WALTER T. SWINGLE.)

The floral vascular anatomy of higher plants has long been under surveillance by botanists, and the differences in vascular pattern of flowers and fruits are often believed to contain keys to the phylogenetic relationships between plants, as well as to provide additional characters for more accurate determination of a particular plant's taxonomic position among closely related species. In general, such studies have been chiefly concerned with the patterns formed by the vascular tissue supplying the various floral parts after its divergence from the floral stele. The occurrence of accessory vascularization in the floral pedicels and receptacles has been frequently overlooked, although in some plant groups, such as the Ochinaceae and Dipterocarpaceae (1), it is common.

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A homologous type of accessory vascularization has been described for young vegetative stems, in which there often exists a system of vascular strands in the cortex which have no connection with the main vascular system. Haberlandt (2) mentioned that an independent cortical system of leaf-traces is formed in stems of the Calycanthaceae and many Melistomaceae; Heinricher (3) described such independent cortical strands for many species of *Centaurea*, which he concluded were, in all probability, genuine cauline bundles, i.e., bundles growing acropetally with the stem, but having no direct connection with other bundles of the vascular system. The ontogeny of such bundles in certain Ronalian stems was studied by Worsdell (4), who found that they originated independently in the cortex, and later on became connected with the petiole strands of the leaves, by the latter differentiating across the cortex to the cauline bundles.

Tillson and Bamford (5) studied the